1512 S BATAVIA AVENUE
GENEVA, IL 60134
630-232-0104

An ALION Technical Center

Test Report

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WALLACE CLEMENT SABINE

FOR: **Turf Design**
Elgin, IL

Sound Absorption
RAL™-A18-443

CONDUCTED: 2018-12-10

ON: Slice ceiling panels

TEST METHOD

Riverbank Acoustical Laboratories™ is accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) as an ISO 17025:2005 Laboratory (NVLAP Lab Code: 100227-0) and for this test procedure. The test reported in this document conformed explicitly with ASTM C423-17: "Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method." The specimen mounting was performed according to ASTM E795-16: "Standard Practices for Mounting Test Specimens During Sound Absorption Tests." A description of the measurement procedure and room specifications are available upon request.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as Slice ceiling panels. A full external visual inspection performed on the test specimen by Riverbank personnel verified the manufacturer's description.

Test Specimen

Trade Name:	Slice
Material:	Polyethylene terephthalate felt
Dimensions:	16 @ 596.9 mm (23.5 in.) x 596.9 mm (23.5 in.)
Key Geometry:	9 mm (0.354 in.) thick felt folded to create square panels
	Linearly-varying height profile, local minima/maxima at corners
Height:	139.7 mm (5.5 in.) and 190.5 mm (7.5 in.) at opposite corners
	241.3 mm (9.5 in.) and 342.9 mm (13.5 in.) at opposite corners
Overall Weight:	14.97 kg (33 lbs)
Installation:	Panels mounted with identical orientation

Physical Measures

Size:	2.39 m (94.0 in) wide by 2.39 m (94.0 in) long
Thickness:	0.33 m (13.0 in)
Weight:	14.97 kg (33.0 lbs)
Mass per Unit Area:	2.63 kg/m² (0.54 lbs/ft²)
Calculation Area:	5.701 m² (61.36 ft²)

Test Environment

Room Volume:	291.98 m³
Temperature:	20.2 °C ± 0.0 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity:	61.95 % ± 0.7 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure:	99.5 kPa (Requirement not defined)

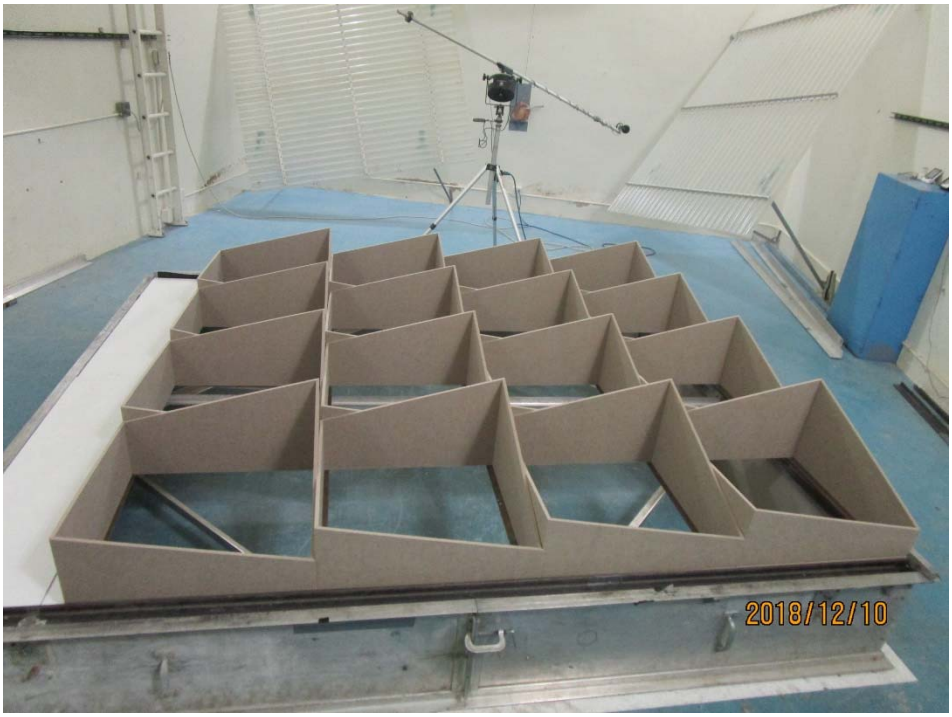

Figure 1 – Specimen mounted in test chamber

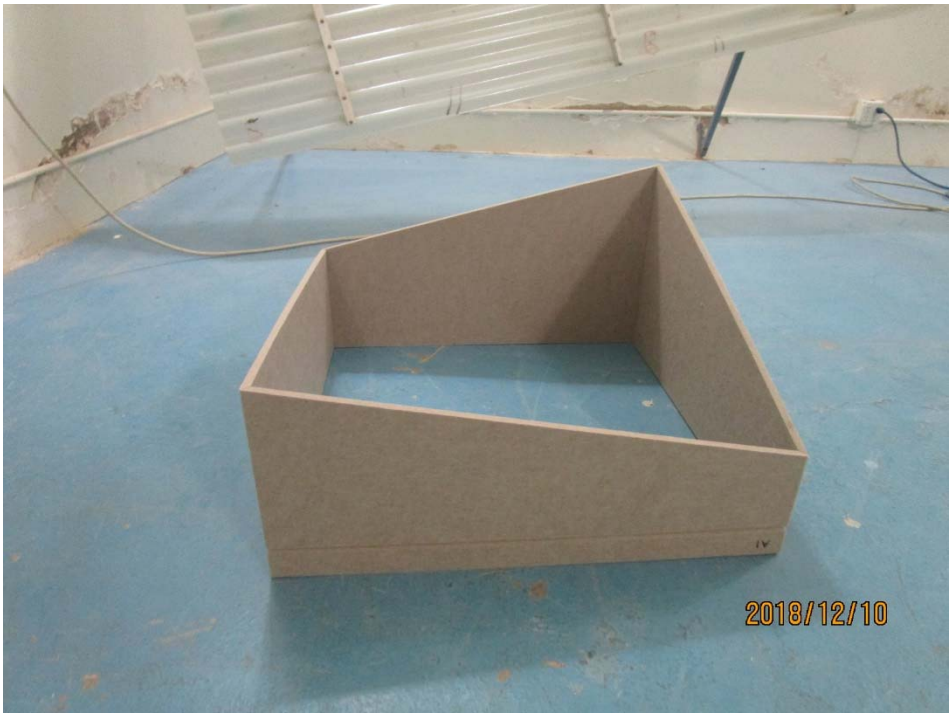

Figure 2 – Detail of individual panel

MOUNTING METHOD

Type E-510 Mounting: The test specimen was mounted with an airspace behind it. The numeral suffix in the mounting designation is the distance in millimeters between the exposed surface of the specimen and the horizontal test surface, rounded to the nearest integer multiple of 5. For the purposes of this report, the mounting designation uses the 139.7 mm (5.5 in.) high corner of the specimen panels for reference. Perimeter edges were sealed with metal framing.

TEST RESULTS

1/3 Octave Center Frequency (Hz)	Total Absorption (m^2)	Total Absorption (Sabins)	Absorption Coefficient
100	3.70	39.80	0.65
** 125	5.05	54.37	0.89
160	3.59	38.62	0.63
200	3.57	38.45	0.63
** 250	3.35	36.01	0.59
315	3.47	37.32	0.61
400	3.80	40.85	0.67
** 500	4.60	49.54	0.81
630	4.58	49.27	0.80
800	4.81	51.72	0.84
** 1000	5.21	56.10	0.91
1250	5.56	59.81	0.97
1600	5.98	64.35	1.05
** 2000	6.24	67.18	1.09
2500	6.57	70.71	1.15
3150	6.77	72.92	1.19
** 4000	7.00	75.37	1.23
5000	6.72	72.34	1.18

SAA = 0.84
NRC = 0.85

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TEST RESULTS (Continued)

The sound absorption average (SAA) is defined in ASTM C423-17 Section 3.1.1 as the average, rounded to the nearest integer multiple of 0.01, of the sound absorption coefficients of a material for the twelve one-third octave bands from 200 Hz through 2500 Hz, inclusive.

The noise reduction coefficient (NRC) is defined from previous versions of ASTM C423 as the average of the sound absorption coefficients at 250 Hz, 500 Hz, 1000 Hz, and 2000 Hz, expressed to the nearest integer multiple of 0.05.

Tested by_____
Dean Victor
Senior Experimentalist

Report by_____
Malcolm Kelly
Acoustician

Approved by_____
Eric P. Wolfram
Laboratory Manager

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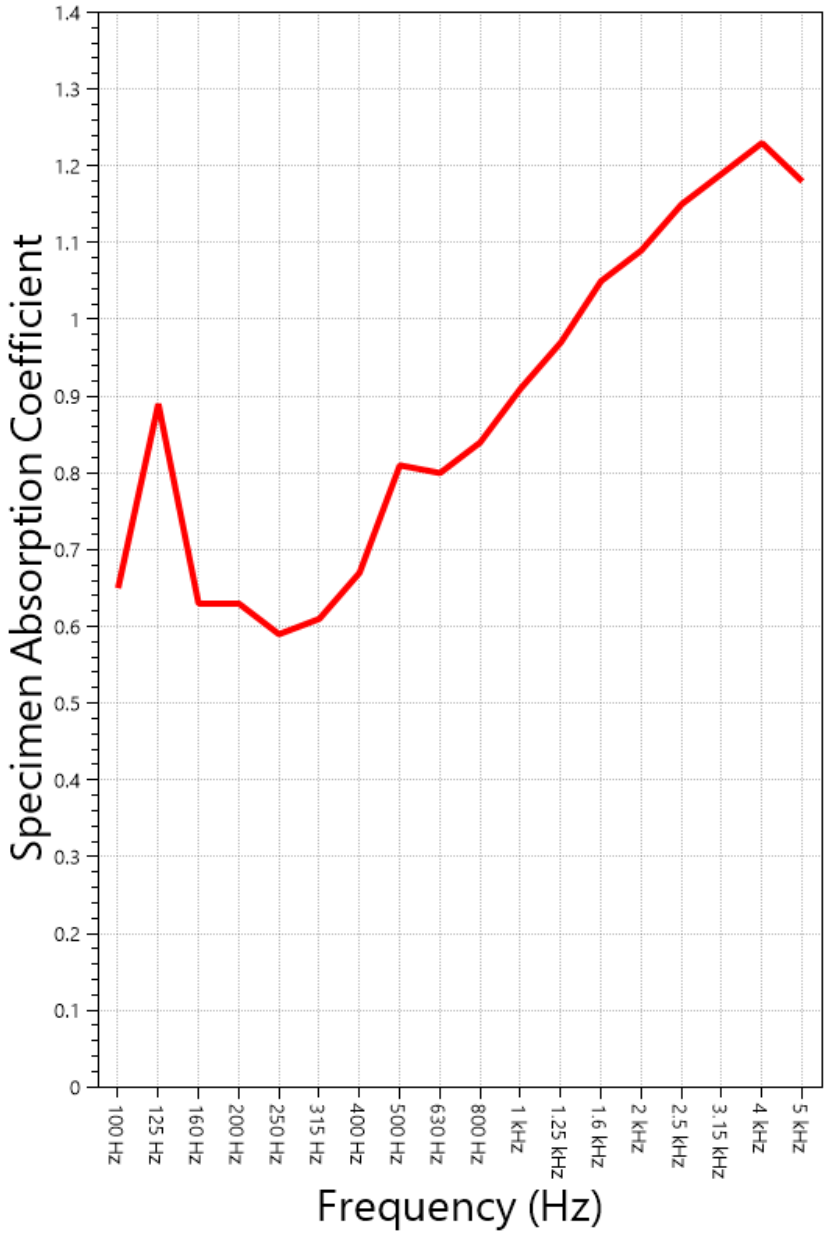
Date: 2018.12.19 15:10:41 -06'00'

SOUND ABSORPTION REPORT

Slice ceiling panels



SAA = 0.84
NRC = 0.85

APPENDIX A: Extended Frequency Range Data

Specimen: Slice ceiling panels (See Full Report)

The following non-accredited data were obtained in accordance with ASTM C423-17, but extend beyond the defined frequency range of 100Hz to 5,000Hz. These unofficial results are representative of the RAL test environment only and intended for research & comparison purposes.

1/3 Octave Band Center Frequency (Hz)	**Total Absorption** (Sabins)	**Absorption Coefficient**
31.5	2.70	0.04
40	4.43	0.07
50	0.46	0.01
63	18.82	0.31
80	17.19	0.28
100	39.80	0.65
125	54.37	0.89
160	38.62	0.63
200	38.45	0.63
250	36.01	0.59
315	37.32	0.61
400	40.85	0.67
500	49.54	0.81
630	49.27	0.80
800	51.72	0.84
1000	56.10	0.91
1250	59.81	0.97
1600	64.35	1.05
2000	67.18	1.09
2500	70.71	1.15
3150	72.92	1.19
4000	75.37	1.23
5000	72.34	1.18
6300	73.73	1.20
8000	75.27	1.23
10000	74.41	1.21
12500	76.15	1.24

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APPENDIX B: Instruments of Traceability

Specimen: Slice ceiling panels (See Full Report)

Description	Model	Serial Number	Date of Certification	Calibration Due
System 1	Type 3160-A-4/2	3160-106968	2018-08-09	2019-08-09
Bruel & Kjaer Mic And Preamp A	Type 4943-B-001	2311428	2018-09-28	2019-09-28
Bruel & Kjaer Pistonphone	Type 4228	2781248	2018-08-06	2019-08-06
Omega Digital Temp., Humid. And Pressure Recorder	OM-CP-PRHTemp2000	P97844	2018-02-03	2019-02-03

END